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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte HEIKE SCHLUCKWERDER
and ULRICH EISELE

Appeal 2009-009860
Application 10/523,251
Technology Center 1700

Before MICHAEL P. COLAIANNI, CHUNG K. PAK, and
KAREN M. HASTINGS, *Administrative Patent Judges*.

COLAIANNI, *Administrative Patent Judge*.

DECISION ON APPEAL¹

Appellants appeal under 35 U.S.C. § 134 the final rejection of claims 15-36. We have jurisdiction over the appeal pursuant to 35 U.S.C. § 6(b).

¹ The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, or for filing a request for rehearing, as recited in 37 C.F.R. § 41.52, begins to run from the “MAIL DATE” (paper delivery mode) or the “NOTIFICATION DATE” (electronic delivery mode) shown on the PTOL-90A cover letter attached to this decision.

We AFFIRM.

Appellants disclose a glass-ceramic composite having increased heat conductivity that is suitable as a substrate material for low temperature co-fired ceramics (LTCC) (Spec. 1 & 2).

Claim 15 is illustrative:

15. A glass-ceramic composite material comprising

a glass-type matrix including lithium, silicon, aluminum and oxygen and at least partly in a crystalline phase; and

a ceramic filler having an oxygen content of 0.5 wt. % to 2.0 wt. %.

Appellants appeal the following rejections:

1. Claims 15 and 22-28 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Ayako (JP 11-292616 A, Oct. 26, 1999)² in view of Mroz (US 6,054,220; Apr. 25, 2000).
2. Claims 29-36 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Ushifusa (US 4,821,142; Apr. 11, 1989) in view of Mroz.
3. Claims 16-21 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Ayako in view of Mroz and Nagata (US 6,514,890 B1; Feb. 4, 2003).

With regard to rejection (1), Appellants separately argue claims 15 and 26 (App. Br. 3-5). With regard to rejections (2) and (3), Appellants advance no further argument regarding the claims (App. Br. 5-6). Instead, Appellants

² We rely on the translation of record dated November 2008 provided by FLS, Inc.

rely on arguments made regarding independent claim 15. *Id.* Accordingly, claims 29-36 and 16-21 stand or fall with claim 15 of rejection (1).

ISSUE

Did the Examiner err in determining that Mroz's teaching of ceramic filler with an oxygen content of 2 to 4% in combination with Ayako or Ushifusa would have rendered obvious a glass-ceramic composite with ceramic filler having an oxygen content of 0.5-2 wt% as recited in claim 15? We decide this issue in the negative.

PRINCIPLE OF LAW

A claimed range may be prima facie obvious when the claimed range and a prior art range overlap or are close enough such that one skilled in the art would expect them to have the same properties. *In re Peterson*, 315 F.3d 1325, 1329 (Fed. Cir. 2003).

FACTUAL FINDINGS (FF)

1. Mroz exemplifies that the AlN powder coated with silica may have an oxygen content of 2.4 to 13.3 wt.% (Mroz, Table 1). Mroz further discloses that the prior art AlN coated silica materials may have an oxygen content of "2-4%" (col. 2, ll. 13-22). Based upon Mroz's teachings, one of ordinary skill in the art would have contextually understood that the "2-4%" refers to weight percent.
2. Mroz discloses that the art recognizes that oxidation of AlN may be a concern and that oxidation may be controlled by avoiding oxidation of the silica coating (col. 5, ll. 28-31; col. 6, ll. 2-6).

ANALYSIS

Appellants argue that Mroz teaches away from using the silica coated AlN in Ayoka's or Ushifusa's glass-ceramic composite because Mroz discloses that mechanical processing damages the silica coating on the particles and reduces their stability (App. Br. 4 & 5). However, the portion of Mroz argued by Appellants refer to prior art silica coated AlN, not Mroz's silica coated AlN. Accordingly, we do not agree that the prior art teaches away from using Mroz's silica coated AlN in Ayako's or Ushifusa's material.

Appellants further argue that the oxygen content of Mroz's AlN powder does not overlap the range of claim 15 (App. Br. 4). Appellants contend that Mroz only discloses "2-4%" and does not specify whether the percentage is based on weight (App. Br. 4). Appellants further contend that the claimed oxygen content of "0.5-2 wt%" is outside Mroz's exemplified oxygen content range of 2.4-13.3 wt.%. (Reply Br. 2).

We are unpersuaded by Appellants' argument because Mroz discloses avoiding oxidation of the coating is desirable (i.e., it should be minimized) and that the oxygen content may be 2.4 wt.%. As found by the Examiner, Mroz further discloses an oxygen content range for the coated AlN particles of between 2-4 wt.%. Therefore, the oxygen content is so close to or overlaps the upper end of Appellants' range (i.e., 2 wt.%) that the claimed range would have been *prima facie* obvious over Mroz. *Peterson*, 315 F.3d at 1329.

Mroz further disclose that it is known in the art to have silica coated AlN particles with an oxygen content of 2 wt.%. Mroz discloses that

minimizing oxidation is desirable and that this result can be controlled by controlling the atmosphere during sintering (i.e., that the amount of oxidation is a result-effective variable). Accordingly, it would have been obvious to optimize the Mroz's oxygen content to the lower end of the oxygen content range (i.e., 2 wt.%) and thus overlap Appellants' claimed oxygen content range.

Moreover, Appellants' do not dispute the Examiner's finding that Mroz's disclosure that the coated AlN particles have an silica coating content of 1% to 10% by weight corresponds to an oxygen content that overlaps Mroz's 2-4 wt.% oxygen content range and, thus, Appellants' claimed oxygen content range (Ans. 5 & 12).

Appellants further argue that Mroz and Ayako do not enable a person of ordinary skill in the art to make and use the subject matter of the claimed invention (Reply Br. 2). However, Appellants have not substantiated this mere attorney argument with any evidence. We are not persuaded.

With regard to claim 26, Appellants argue that the Examiner failed to provide any evidence that Ayako's weight percentages would have overlapped the claimed percents by volume (App. Br. 5). The Examiner has provided calculations to substantiate that Ayako's ranges would have overlapped the claimed percent by volume (Ans. 13), which Appellants have not disputed.

For the above reasons, we determine that the Examiner did not err in finding that the disputed oxygen content would have been rendered obvious by the combined disclosures of Ayako or Ushifusa with Mroz.

Accordingly, we affirm all of the Examiner's § 103 rejections.

DECISION

The Examiner's decision is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(2009).

ORDER

AFFIRMED

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